

## **DETERMINATION OF K, Mg, Mn AND Na IN COMMERCIAL INFANT FOOD BY INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS**

Priscila Vallinoto, Vera A. Maihara. Instituto de Pesquisas Energéticas e Nucleares (IPEN / CNEN - SP). Av. Professor Lineu Prestes 2242, CEP: 05508-000 São Paulo, SP, Brasil

Eating habits are important determinants of health conditions during childhood. The commercial infant foods are an important part of the diet for many babies, thus it is very important that such food contains sufficient amounts of essential elements. Inadequate complementary feeding is a major cause of high rates of malnutrition in throughout the world. The commercial infant foods are classified into four different stages: Stages 1 and 2 are adequate to babies from 6 months, but new flavors and foods are introduced in stage 2; Stage 3 is offered to 8 month babies; Junior Stage is recommended to children for over 1 year old. In this study, essential elements: K, Mg, Mn and Na were determined in commercial infant food samples by Instrumental Neutron Activation Analysis (INAA). Twenty-seven infant food samples were acquired in markets around São Paulo city during 2011. These samples were freeze-dried and homogenised before analysis. Approximately 100 mg of the powdered samples were irradiated for 20-seconds under a neutron flux of  $6.6 \times 10^{12} \text{ n cm}^{-2} \text{ s}^{-1}$  in the IEA-R1 nuclear research reactor of IPEN/CNEN-SP. For validation of the methodology, INCT MPH-2Mixed Polish Herbs reference material was analysed. The concentrations varied as follows: 559 $\mu\text{g/g}$  to 658  $\mu\text{g/g}$  for Na; 1712  $\mu\text{g/g}$  to 2272  $\mu\text{g/g}$  for K; 112  $\mu\text{g/g}$  to 140  $\mu\text{g/g}$  for Mg. All concentration results were below of the WHO recommended daily intake for infants from 2 to 12 months. These low essential element concentration results in commercial infant foods obtained in our study indicate that infants should not be only feed with commercial baby foods.